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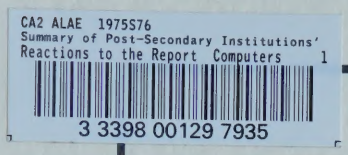
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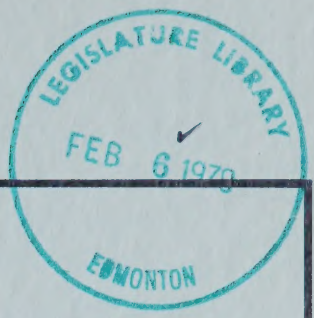
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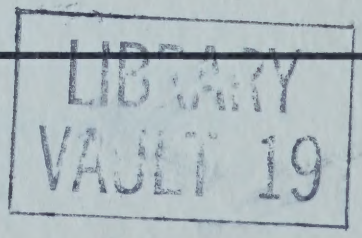
A Summary of Post-Secondary Institutions' Reactions to the Report "Computers in Higher Education"

Prepared by:
D. G. Crawford, Director
Learning Systems Services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A SUMMARY OF POST-SECONDARY INSTITUTIONS' REACTIONS TO THE REPORT "COMPUTERS IN HIGHER EDUCATION"

Prepared by:

D. G. CRAWFORD, DIRECTOR
LEARNING SYSTEMS SERVICES

ALBERTA
ADVANCED EDUCATION

MARCH, 1975

PURPOSE

The purpose of this paper is to summarize the reactions of post-secondary institutions to the report entitled "Computers in Higher Education" (hereafter referred to as the Report). Interpretive comments, not intended to reflect any particular position or commitment, have been added to place responses in context. The information supplied by responding institutions, and summarized in this report, will serve as input to the development of a provincial policy position for rationalizing computing services.

HISTORY

In 1970, the Alberta Universities Commission established a Steering Committee on Computer Development to study the use of computers in the Province's post-secondary institutions, with the expectation that cooperative action by educational institutions may lead to less expensive and more effective computing services.

While membership on the Committee changed with time, it was composed of representatives from each of the three universities, from the Northern and Southern Alberta Institutes of Technology, from the Department of Education (now also from the Department of Advanced Education), from the Colleges Commission and one of the colleges, from the Human Resources Research Council, and from the Universities Commission.

This group worked over a period of approximately three years, their efforts culminating in the Report published in May, 1974 under the aegis of Advanced Education, Alberta.

The Report, then, is the product of the potential users of computing services in post-secondary institutions of the Province, and the 27 recommendations contained therein represent a democratically achieved concensus. The Committee felt that through its efforts not only was it better able to understand each institution's unique problems, but also to lay the groundwork for systematic and rational future development of computing facilities for the institutions.

On July 2, 1974, all post-secondary institutions were sent copies of the

Report for study and were asked to submit their reactions to Advanced Education by October 31, 1974.

Eight institutions responded: N.A.I.T., S.A.I.T., Red Deer College, Grant MacEwan College and the Universities of Lethbridge, Calgary, Alberta, and Athabasca.

GENERAL POSITION STATEMENTS OF EACH RESPONDENT

Five of the eight respondents provided position statements generally in support of the Report's recommendations and summarized as follows:

1) The University of Alberta submitted a resolution "that this University support the major policy recommendation of the report...that the University should accept responsibility for the operation of a regional computing facility... subject to the following conditions:

a) that the Department of Advanced Education will provide special funding to implement the proposed facility;

b) that the facility would be operated in general accordance with the recommendations contained in the report...;

c) that the timetable for implementation of the proposed facility can be satisfactorily negotiated with the Department of Advanced Education...;

2) Athabasca University stated that, "in general, we are in favour of the recommendations." This response was prefaced by a description of the University's plans for computing services and the facilities required to implement these plans.

3) Grant MacEwan Community College "...agrees in principle that the Province should proceed with the creation of an integrated, province-wide computer system..."

4) The University of Lethbridge "supports, in general, the recommendations of the report and agrees with the supporting technical considerations."

5) Red Deer College complimented the Steering Committee on Computer Development for the effort and depth of research readily apparent in the documents produced and felt that the recommendations put forward by the Committee "...should be favorably accepted by post-secondary educational institutions."

The remaining three respondents were less positive. Their reactions are summarized as follows:

1) The University of Calgary's submission was prefaced by a statement from its General Faculties Council that "the proposed amendments (in its submission) are intended as improvements to recommendations" which are not to the University's advantage.

Although the University recognizes the difficulties faced by the Steering Committee in reaching agreement on complex issues as were dealt with in the study, it remains unconvinced "...by evidence presented in the report that the solution recommended is best for the University, for the colleges, or for the students at these institutions." Further, they believe there may well be "less centralized arrangements" offering better computing service to all post-secondary institutions, and that "these arrangements would not necessarily be more expensive." While attempting "to give a positive and constructive response," and, "to take a broad view of what is best for higher education...," it believes the Regional Centre scheme's disadvantages to the University and its computer users "more than offset the advantages." Consequently, it urged that any solution adopted "not be so rigid that (it) rules out orderly evolution."

2) N.A.I.T.'s primary concern is that computer facilities be provided to support present and future demands for both its own instructional and related administrative requirements, as well as to meet the level of services necessary to satisfy the demands of those remote users currently accessing their computer resources, namely Grant MacEwan, Red Deer and Lethbridge Colleges. Therefore, it argued for an expanded "in-house" system, but it would like to have access to other systems to provide any services (such as computer-assisted instruction) not practical for incorporation into its proposed system.

3) S.A.I.T. concluded that it prefers "the status quo rather than concentrating (computer) facilities in the two large Universities," but agreed with all of the Report's recommendations, except number 21, 25, 26 and 27.

SUMMARY OF RESPONSES AND COMMENT

Responses are summarized under the same four general headings as found in the Report, namely:

A) General Principles for Development of the Computer Services System (Recommendations 1 - 8)

B) Technical Recommendations (9 - 14)

C) Organizational Recommendations (15 - 22)

D) Transitional Arrangements and Future Action (23 - 27)

The summary of institutional responses to each recommendation is followed by the author's comments.

A. General Principles for Development of the Computer Services System (Recommendations 1 - 8)

Recommendation 1. *All students in the post-secondary institutions should have equality of access to comparable computing services, regardless of whether they are at a large school or a small one, regardless of geographic location; similarly for teachers, researchers, and administrators.*

There was general agreement with this recommendation. Indeed, the University of Lethbridge considers it central to the report. The recommendation is, however, dependent on the implementation of Recommendations 12 and 21 (see below), which address themselves to the need for Computer Service Centres. being established at the Universities of Alberta and Calgary. The University of Lethbridge feels that this recommendation would imply there be equal access by all institutions to on-campus facilities at the proposed Service Centres, and that the Department of Advanced Education would provide the special funds necessary for both developing the telecommunications system and financing the Universities to facilitate fulfilment of designated responsibilities.

Athabasca University underscored the importance of subsidization of line-costs to enable its students, who are scattered throughout the Province, to make use of the proposed centres.

Red Deer feels that the Committee did not emphasize sufficiently that students oncampus at the two major Universities do have access to many special computer services beyond the main computer service capabilities of the institution. As does the University of Lethbridge, Red Deer seems to understand that the concept of equal access implies no inter-institutional barriers for outside users.

Calgary noted that, in the final analysis, computing service quality can only be achieved by meeting the stated requirements of ultimate users.

Comment

It seems clear that there is general agreement with the principle of equality of access in the sense that geographic and institutional barriers to such services be removed.

The principle of equal access appears to imply to some that institutional barriers to specialized computing services (now enjoyed by the students and staff of large institutions) be removed. For example, the University of Calgary noted that computing science as a discipline requires direct access to both large- and small-scale computing systems to perform research and to educate students. Presumably, any user of the proposed network in the field of computer science would have the same access rights as students and staff at the institution housing the regional computing facility.

Recommendation 2. *The ultimate user, aggregated, should determine the amount and nature of computing in the system by the amount of money he spends and how he spends it, within his budget constraints.*

Recommendation 3. *All computer users in the system should pay the same amount for comparable services.*

Recommendation 4. *In the long run, allocation of funds for computer expenses should be determined by normal budgetary mechanisms (of the institutions).*

Recommendation 5. *In the long run, users or groups of users of computing services should have freedom to spend money for service inside or outside the system.*

Most respondents addressed these four recommendations as a group.

N.A.I.T. feels that support and services might become dependent on funds available for computing, and that as a result the small user with limited funds might be overlooked and required computer services not provided.

Athabasca responded that if charging services proved disadvantageous to its students, it would have to consider outside alternatives.

The University of Calgary assumed that user institutions would be in control of the charging arrangements.

Comment

There was general agreement with Recommendations 2 - 5. The concerns regarding small users and the specifics of establishing billing, cost-accounting, rate-setting and contracting for services can only be addressed by the administration and organization of the proposed network. These issues are discussed below.

Recommendation 6. *Distinction should be made between computers used for specialized purposes and computers used for providing general services. A computer used for specialized service is defined as follows:*

a) it is an integral single-purpose component of a piece of experimental or instructional apparatus; and

b) it cannot practically be used by more than one group within the institution.

The University of Calgary rejected this definition of specialized facilities as too restrictive, redefining them as: "a facility which performs some teaching, research or administrative functions which cannot be done adequately or efficiently on the central facility." It is opposed to having decisions about the need for specialized equipment made by an outside agency, but accepted the government having a voice in decision-making.

N.A.I.T., too, is concerned that an "outside agency" has the authority to "...override or delay properly submitted, approved estimates for hardware procurement that comes from within any institution."

Athabasca noted that they have or will have, two specialized computing functions -- computer-assisted instruction and information systems applications which require or will require Government to subsidize line-costs for their students.

Comment

The concerns of N.A.I.T. and the University of Calgary that the proposed central agency may exercise too much control over institutional acquisitions of specialized computers, or, for that matter, any hardware acquisitions, again is an issue best worked out when establishing authority parameters of the proposed central agency.

The University of Calgary emphasized the importance of providing the support for dedicated, specialized computer systems to promote the development of computer-assisted or computer-managed instruction, and to make these services available to all users. While it recognized that some development work should proceed on a centralized computing system, the examples of successful implementation at the Universities of Alberta and Calgary in this field argue the merits of specialized systems which satisfy stringent requirements for system stability, reliability and response time. It is worth noting, too, that both Athabasca and N.A.I.T. mentioned their interest in access to computer-assisted instruction facilities. Interest in this specialized application also appears to be emerging in other post-secondary institutions around the Province.

The University of Calgary has held discussions with Control Data Corporation concerning CDC's PLATO system. In its financial plan for the proposed Southern Regional Computing Centre, the University of Calgary estimated the increase in funding required to provide PLATO as a computer-assisted instruction service.

While the University of Alberta did not address remarks to its work in computer-assisted instruction, its Department of Educational Research Services (Faculty of Education) under the leadership of Dr. S. Hunka has prepared a submission entitled "A Proposal for a Computer-Assisted Instruction Facility." The document indicates clearly an interest in and capability for providing a service function, both in terms of courses that could be offered to remote students, and training and consulting service for teachers wishing to prepare computer-assisted instruction materials for their students.

Obviously, deliberations on computing services in the Province must include an examination of the prospects of providing computer-assisted instruction service capabilities.

Recommendation 7. *The pricing of computer services should be based on long-run cost recovery within the system. There should be accurate cost-accounting with careful attention to the distribution of overhead.*

While the Report pointed out that the principle of pricing computer services was not intended to preclude tactics such as "priority pricing", Athabasca University questioned the use of that tactic to smooth computer loads over time.

It argued that these procedures have not been too effective in the past because of outside funding mechanisms.

The University of Calgary underscored the importance of explicit evidence of a fair accounting and charging system; books must be kept open to participating institutions, and a standing committee on accounting practices should be instituted by the proposed Advisory Committee on Computing. It recommends also that data be kept on the overall system-loading and response-time to users as an additional source of quantitative information on use of the computing system.

Comment

There was no disagreement with the notion of cost recovery and "paying for what you get."

Recommendation 8. *There should be explicit funding and accounting of applied research and development costs in the computing services system.*

All respondents either agreed explicitly or implicitly with this recommendation.

B. Technical Recommendations (9 - 14)

Recommendation 9. *Since there is no significant difference among the various equipment alternatives with regard to total cost, the selection of an alternative for future development should be made on non-financial grounds.*

N.A.I.T. questioned the validity of this recommendation in that initial equipment costs for decentralization vs. the accumulation of rental costs to provide access to a centralized system were not considered by the Committee. These considerations must be taken into account for each institution prior to deciding on centralization.

The University of Calgary also questioned the validity of this recommendation, but for a different reason. While it assumed that some centralization will be necessary, and therefore in general terms agreed with this recommendation, it

did so with the reservation that inaccurate 1972-73 enrolment figures had been used.

Finally, the University of Alberta advocated re-wording the recommendation, deleting the word "equipment", since costs compiled for the various alternatives were not restricted to equipment.

Comment

Even if the University of Alberta's suggested re-wording is accepted, and the University of Calgary can accept the "inaccurate enrolment figures" used in the Report, apparently there still remains the task of analyzing comparative figures for decentralization vs. centralization, as suggested by N.A.I.T.

Recommendation 10. *A single computer, a single geographic location, or a single vendor should be rejected as possibilities to meet the requirements of the post-secondary system.*

The only qualification directed to this recommendation came from the University of Alberta, which suggested adding the words "for the current planning period."

Recommendation 11. *There are sound technical and service reasons for locating the future service centres in Edmonton and Calgary, and on or near the campuses of the two major universities.*

N.A.I.T. disagrees with this recommendation, in that it does not like the assumption that facilities serving universities would be satisfactory to other institutions.

Recommendation 12. *The computer service centres should undertake a joint development program to provide telecommunications access in such a way that the facilities of all centres would be available to all post-secondary institutions and to investigate accessing arrangements to facilities outside the post-secondary system and the Province. The Department of Advanced Education should provide special funds for this development work.*

S.A.I.T. considers this "the key recommendation of the report," and one with which it agrees, since both it and N.A.I.T. are existing service centres.

Both N.A.I.T. and Athabasca University expressed agreement with the principle of inter-system accessibility.

The University of Lethbridge urged the earliest possible implementation of this recommendation, as well as immediate consideration for providing financial coverage for current communication costs to the University. These costs consume 40% of funds spent by them for remote computing at the University of Calgary.

Comment

Reactions to this recommendation were highly positive, but it is clear that the Institutes of Technology perceive themselves as computing service centres. The question of what service functions the Institutes of Technology might perform in a Regional Computing Centre scheme - either on an interim or continuing basis, is an issue which requires resolution.

Recommendation 13. *A cautious approach should be taken toward consolidation of academic and administrative computing operations.*

Recommendation 14. *The management of the academic service centres and administrative service centres is urged to seek ways to consolidate operations to the extent economically and technically possible.*

Reactions to these two recommendations are considered together.

Athabasca noted that it would be using a general service computer for both administrative and academic functions.

The University of Calgary interprets these two recommendations as directed towards the totally separated facilities at the University of Alberta, which is not the case at Calgary. In its view, the ultimate consideration is the quality of service provided to both classes of users, and the potential cost of conversion. If adequate capacity is provided, they argue, both types of jobs could run on a single system.

N.A.I.T. feels the issue addressed in Recommendation 14 assumes that the University of Alberta is to be one of the Centres - an assumption with which they disagree (see reactions to Recommendation 21).

The University of Alberta suggested a wording change for the Recommendation 14 as follows: "The managements of the academic service centres and administrative service centres are urged to seek ways to consolidate operations."

Comment

While there was general agreement with these two recommendations, the Institutes of Technology do not accept the necessary premise on which the recommendations are based - designating the Universities of Alberta and Calgary as the service centres. As the University of Calgary pointed out, the issues addressed in these two recommendations may simply be quality of service and cost-conversion issues. That the University of Alberta currently has separate administrative and academic functions may require different implementation of centralization procedures for the two proposed centres.

C. Organizational Recommendations (15 - 22)

Recommendation 15. *The computing services system should be under the administration of the educational institutions, rather than the Provincial Government or the Department of Advanced Education.*

Recommendation 16. *The computing services system should be designed and selected by the educational institutions.*

These two recommendations are considered together.

The Universities of Alberta, Calgary, and Athabasca, and N.A.I.T., all suggested an "arms-length" or neutral control agency to operate the proposed centres, both financially and organizationally.

The University of Alberta recommended a re-wording of Recommendation 15 to read: "The computing services system should be under an administration responsible to the educational institutions, rather than the Provincial Government or the Department of Advanced Education." If this were the case, the University of Calgary suggested that budgeting by the Centre would then depend on the total commitment by participating institutions.

Calgary suggested further that the proposed centres be governed by an independent boards of directors, with representation proportional to institutional usage of the proposed centres, and having a heavy "academic component". In its view, Advanced Education should have a representative on the governing body; any decisions made by this body would not be irreversible, but reviewed after two or three years in deference to new developments in computing hardware, or new demands from users (especially the Colleges) which could provide for arguments against or for centralization. The University of Calgary emphasized that Recommendation 15 must not defeat the purposes of Recommendations 16 and 17. It suggested that an interim operation of the Southern Regional Centre might be on a trust account basis through the University.

Comment

There appears to be general agreement with these recommendations, as well as agreement on an "arms-length" or neutral control agency, with a variety of suggestions put forward regarding representation on and the functions of the central agency.

Recommendation 17. *The computing services system should be staffed, wherever possible, by persons from the educational institutions.*

All respondents either implicitly or explicitly agreed with this recommendation.

Recommendation 18. *If any group within the post-secondary system wants to buy or rent computer equipment, it should obtain an assessment and opinion for this separate spending from a review board (or boards). This board (or boards) should be independent of any organization providing general computing services.*

The Universities of Alberta and Calgary both feel that review mechanisms for non-service or special purpose computers should be an institutional responsibility. The University of Calgary directed comments to this issue under Recommendation 6.

Comment

The Universities of Calgary and Alberta, as well as N.A.I.T., at various points in their responses to the Report have addressed comment to the issue of review mechanisms for the acquisition of computing equipment. Accordingly, Recommendation 18 appears to refer to an issue requiring considerably more debate to determine what authority for hardware acquisition can and/or should be invested in the proposed centre.

Recommendation 19. *The Department of Advanced Education should appoint an Advisory Committee on Computing on a permanent basis to:*

a) advise the Department on future organizational and technical developments with regard to computing for the post-secondary system;
b) advise the Department on acquisition of any general purpose computing facilities by any of the institutions;
c) coordinate, in an advisory capacity, acquisition of service facilities among the institutions;
d) collect, on a systematic basis, statistics regarding use of computers at institutions;
e) advise the Department on matters relating to networks and computer communications inside and outside the Province;
f) sponsor conferences and workshops on matters relating to computers for the purpose of education staff at the various institutions, and to discuss proposals for changes to the computer services system;
g) advise the regional service centres of levels and kinds of services required;
h) deal with other related matters which may, from time to time, be referred to it by the Department.

The function of the proposed advisory committee, according to the University of Alberta, will depend on the organization of the proposed centres and their relationships with the client institutions -- all of which can be worked out by negotiation.

N.A.I.T. would have agreed with this recommendation, assuming, of course, that a distinction between computers used for specialized and general services is made (see Recommendation 6).

Athabasca suggested that the proposed advisory committee act as a coordinator of information among users, not just service in an administrative or grievance role.

The University of Calgary agreed with this recommendation, providing there is a separate advisory committee for each proposed regional centre.

Its submission provided details of membership and the terms of office for such a committee on the understanding that liaison between the proposed advisory committees could easily be effected for joint undertakings in areas of interest common to the two proposed regional centres. It argued that the terms of office for both the members and the chairman of the proposed advisory committees be in excess of one year to provide for needed continuity. It suggests further that the chairman be an academic actively involved in teaching. While serving in the capacity of chairman, the academic should be partially relieved from regular duties, with costs assumed by the proposed centres. All participating institutions should have representation on the advisory committees and thereby a ready forum for documenting complaints from individual and institution users.

Grant MacEwan recommended that instead of one "advisory board" (presumably the advisory committee), to perform both advisory and administrative functions, two boards be established:

a) an advisory board to advise the Government with regard to computer services for post-secondary education;

b) a management board to administer the system.

Recommendation 20. *The Advisory Committee on Computing, as discussed in Recommendation 19, should be made up of three members from universities, three members from other post-secondary institutions, and one member from the Department of Advanced Education. The Department member would act as chairman with voting privileges.*

N.A.I.T. and Athabasca disagree with this recommendation. Athabasca feels it should be represented since it will use both proposed centres substantially, remote terminals significantly, and its uses will be non-typical. N.A.I.T. disagrees on grounds that the proposed committee should have representation from all post-secondary non-university institutions.

The University of Lethbridge also supports representation from each institution.

The University of Calgary believes this committee could be drawn from each of the proposed regional centre's advisory committees (see University of Calgary's reactions to Recommendation 19, above).

Grant MacEwan suggested the establishment of two separate boards, one for administration and one for management.

Membership on these two boards, which would ensure public representation and input, was suggested as follows:

a) Advisory Board - universities - one representative
- colleges - one representative
- Institutes of Technology - one representative
- other post-secondary institutions - one representative
- lay members - five representatives

b) Management Board - universities - three representatives
- colleges - two representatives
- Institutes of Technology - two representatives
- other post-secondary institutions - two representative

Comment

This recommendation strikes at the central issue of representation and operational control of the proposed centres. The variety of points of view concerning representation, administration, organization and control, while underscoring the problems involved, also contribute a rich source of ideas for evolving potential solutions.

Recommendation 21. *The Department of Advanced Education should designate the University of Alberta and the University of Calgary as service centres for general purpose computing for the post-secondary system.*

The designation of the Universities of Alberta and Calgary as the service centres for general purpose computing generated varying responses.

Both N.A.I.T. and S.A.I.T. disagreed with this recommendation, the former because it eliminates alternative B^1 in the Report, i.e. a single location in Calgary or Edmonton, or on the campus at S.A.I.T.

S.A.I.T. disputes the recommendation because its needs, they argue, are best served by obtaining the present level of in-house service -- an argument for the "status quo" (alternative E in the Report; which suggests that computing equipment currently in place be suitably up-graded if necessary, and computing requirements of institutions not having computers be met by tele-processing lines to the nearest existing computer). S.A.I.T. feels it would use the proposed regional centres only to access special services available. Also, it considers Recommendation 12 the key recommendation, and that both N.A.I.T.

and S.A.I.T. are existing service cnetres and should continue as such.

The University of Lethbridge and Athabasca University support the recommendation, the latter reiterating its earlier statement that the funding and administration of the proposed centres be separate from the academic or administrative pressures of the host university. The University of Lethbridge also expressed the view that each proposed Centre be organized so as to administratively separate it from its host institution, with the responsibility for monitoring the relationship between the host institution and the proposed centres placed with the proposed advisory committee.

The University of Alberta suggested that each institution have equal access to either centre, and that the designation of these universities as regional centres should not preclude other institutions performing some service centre functions within the local regions. Consequently, special financial support for telecommunications similar to that provided to the proposed regional centres would be necessary. In addition, the University of Alberta proposed a two-year trial period during which the proposed regional centres would be operated by the two Universities. This arrangement could be reviewed by the proposed advisory committee at the end of that period. Also, the University of Alberta should be advised by a users' advisory board concerning the operation and financing of the Centre. This board would have representation from each user institution.

The University of Calgary felt that its comments directed to Recommendations 9 and 15 were appropriate responses for Recommendation 21. However, it added that it perceived significant disadvantages for the University of Calgary under the proposed organizational arrangements, primarily in the area of the increased responsibilities which the University would have to accept:

1) The University would become responsible for the successful function of user institutions by becoming an integral part of their teaching, research and administrative support. It argued that the University could be placing itself in a vulnerable position, and would have to accept direct responsibility for any failures, attributable to poor or inadequate computer support from the proposed regional centre suffered by a user institution. It added that the assumption of this type of responsibility could lead to a sensitive conflict of interest situation, in which University of Calgary employees would have to attempt to satisfy both internal and external requirements.

2) The University would become responsible for the administration and management of the proposed regional centre, and as a result would be accountable to the Government for this activity. The responsibility thus incurred would include contractual commitments; negotiations of contract; financial accounting, billing, control and reporting; purchasing; etc. Additional responsibilities, and relatively new ones for the University, would include user-institution education and consulting, and regional centre marketing (after Recommendation 5 had been achieved).
3) While the exact nature of the financial procedures and commitments that would exist between the University and Government are not known at this time, there must be no element of financial risk for the University. (See their reactions to Recommendations 15 - 17).

Comment

The physical location of the proposed centres on the campuses of the University of Alberta and the University of Calgary, and the assumption by the Universities of the additional responsibilities associated with the administration of the Centres, was not generally well received. It would seem that a "neutral" control agency, as well as perhaps a "neutral" physical location near the main users, could serve to allay some of the problems.

Recommendation 22. *A standard computing services agreement, specifying services to be provided by a service centre to a user institution, and including such items as access arrangements, charging and accounting principles, and services to be provided, should be developed and applied to all institutions entering into the proposed computer services system.*

Athabasca reiterated its concern that telecommunications costs must be subsidized and that service priorities must be established, particularly in the realm of such specialized functions as computer-assisted instruction and computer-based text processing.

Grant MacEwan suggested a means for establishing equality of success: A scheduling system could be adopted with times periodically rotated, allowing institutions equal access in cases of "peak load periods".

The University of Calgary agreed to this recommendation, given the following details of contractual, financial, and administrative conditions were met:

1) Modifications to existing facilities affecting other users must receive approval of the board of directors acting in consultation with the advisory committee, and must not subvert existing contractual arrangements.
2) The centre must be allowed to carry over funds from one budget year to the next. Carry-over of funds by users is a matter for institutional decision, and cannot affect contractual relationships between the centres and user institutions.
3) The centre must be the contractor for telecommunication facilities (in order to coordinate management of such facilities). The Department will have to fund directly the regional centre for these expenditures, including travel, mail, telephone calls, etc.
4) Financial commitments - The need to adjust expenditure levels in an orderly manner must be recognized; in the short run, institutions should be expected to make minimum commitments equivalent to their present expenditures. In subsequent years, an institution may change its commitment by the lesser of +/- 20% of its own previous commitment or +/- 5% of the total budget of the centre for the previous year. Changes outside this limit should require approval of the centre.
5) Contractual guarantees and provisions - The present level of service to the University of Calgary and other qualitative considerations are expected to be maintained or improved. Further, the processing capacity currently available to the University of Calgary must continue to be made available, <u>if</u> the present level of expenditure by the University is to be assumed as an initial commitment. These present facilities have been planned to allow for future growth and development of computer usage by the University. Therefore, the same growth development potential must exist for the same level of expenditure under the recommendations of the report.

<u>Comment</u>

General agreement with this recommendation was supplemented by significant

elaboration of the kinds of contractual arrangements and of specific matters to be addressed in such arrangements.

As an additional comment, the University of Calgary noted that reliability of services may be inversely related to the complexity of a system but its importance is directly related to the remoteness of its users.

Therefore, the establishment of a regional centre will require a considerably increased emphasis on reliability. This must be considered not only with respect to hardware and software, but also with regard to quality and continuity of staff.

D. Transitional Arrangements and Future Action (23 - 27)

Recommendation 23. *This report should be circulated to the institutions for the widest possible discussion.*

This recommendation was accepted by all respondents.

Comment

As described above, on July 2, 1974 all post-secondary institutions were sent copies of the Report and asked to respond by October 31, 1974.

Recommendation 24. *The Department of Advanced Education should notify the institutions, after receipt of feedback, of its acceptance or rejection of the recommendations of this report. Such notification should include a statement of when the accepted recommendations of the report can be implemented. Of crucial importance, if the resolutions are accepted, are the following:*

a) when will the recommended Advisory Committee on Computing be set up, what will its powers be, and when will it start to function;

b) when and under what conditions will the necessary upgrades of equipment be able to take place, that is, when will the funds necessary to implement the plan outlined in this report be available.

This recommendation was accepted by all respondents.

Recommendation 25. *The University of Alberta and University of Calgary should prepare a five-year financial plan detailing how they would carry out the responsibilities recommended in this report. The response from the University of Alberta and the University of Calgary should contain these plans.*

Only N.A.I.T. and S.A.I.T. disagreed with this recommendation; the former since it is not compatible with alternative B[1] (a single computing centre with the Universities of Alberta and Calgary as separate systems); the latter for the same reasons it disagreed with recommendation 21 (see above).

The University of Calgary is in favour of the Government providing for capital equipment grants for equipment purchases on condition that capital funds be repaid over the estimated useful life of the equipment by drawing from operating funds. They argue further that decisions concerning whether to opt for a maximum or a minimum capital purchase plan should be based strictly on the economic advantages of purchase vs. rental. Particular attention should be directed to the amortization period selected, and the risk of obsolescence inherent in equipment purchase.

Finally, the University of Calgary argues that decisions of this kind must be freed from artificial constraints based on whether the expenditure is to be made from operating or capital funds.

Comment

The Universities of Calgary and Alberta both provided five-year financial plans.

The University of Calgary submitted two financial plans, one based on a minimum and the other on a maximum capital purchase.

Recommendation 26. *Institutions should continue development of facilities to meet their present and anticipated needs, such development to be compatible with the recommendations of this report which envision the establishment of regional service centres at the University of Alberta and the University of Calgary. Where additional funding is required for the institutions in order to move toward this objective, such funding should not be witheld pending Department of Advanced Education acceptance or approval of a province-wide system.*

All institutions but N.A.I.T. and S.A.I.T. agreed with this recommendation. The latter would have agreed had the assumption been deleted that the Universities of Alberta and Calgary should provide and control the regional service centres.

The University of Lethbridge indicated it will coordinate its capital expansion plans for computing equipment with those of the University of Calgary, using informal consultation.

Grant MacEwan recommended the Government ensure the availability of adequate funds for both transitional costs and the subsidization of telecommunications costs for remote users. Such funds, it felt, should be from special allocations and not from existing or projected institutional budgets.

Recommendation 27. *The request of the University of Alberta for equipment to replace its overload academic facility should be given favourable consideration.*

"No comment" statements were received from N.A.I.T., S.A.I.T. and the University of Calgary. Implicit agreement with this recommendation was received from the remaining respondents.

Comment

The University of Alberta has prepared a supplementary submission requesting funds to upgrade its hardware to facilitate fulfilment of its proposed responsibilities in implementing the Report's major recommendation for a northern centre. This submission is "to further refine and complete" information previously submitted while awaiting decisions stemming from the Report. Its submission is consistent with the Report's recommendation.

N.A.I.T. also has submitted plans for upgrading its computing facility, and has stated that it has arranged for cooperative activity with the University of Calgary.

CONCLUSION

The Report calls for a change in the way that computing services are organized, administered and delivered in the Province. Responses to the report identify a series of issues which need to be addressed. Some of these centred on concerns about the future quality of computing service and differences of opinion concerning the functions, authority, and composition of the "governing authority" of the proposed regional centres.

The basis for resolving differences of opinion emerging from indivdual responses to the Report can be found in these responses as well as in the wealth of experience which is accumulating from efforts of others to transfer some control for computing services to a central agency.

However, it is clear that any decision arrived at will not meet all demands of all users. The job of Government, in cooperation with post-secondary institutions, will be to look for a "best fit" solution and to create an environment within which computing services can develop in the coming years in Alberta to best meet the current and emerging needs of all institutions of higher education in the Province.